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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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GERMANY

EXAMINER	
SAVAGE, JASON L	
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/575,848	CASPERS ET AL.	
	Examiner	Art Unit	
	JASON L. SAVAGE	1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *24 October 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *14-29* is/are pending in the application.

4a) Of the above claim(s) *28* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *14-27 and 29* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Election/Restrictions

Newly submitted claim 28 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons:

Invention of the originally elected claims and newly submitted claim 28 are related as process of making and product made. The inventions are distinct if either or both of the following can be shown: (1) that the process as claimed can be used to make another and materially different product or (2) that the product as claimed can be made by another and materially different process (MPEP § 806.05(f)). In the instant case the product as claimed can be produced by a materially different process such as by forming the sliding layer on a carrier layer by a method other than sputtering such as electron beam vapor deposition.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 28 has been withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Claim Objections

Claim 29 is objected to as dependent upon itself. For the purpose of examination it is considered to be dependent upon claim 28.

Claims 14-27 and 29 are objected to because of the following informalities: The claims are dependent upon withdrawn claim 28. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 14-27 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Steeg et al. (US 5,955,202) in view of Steffens et al. (US 2004/0101218).

Steeg teaches a plain bearing composite comprising a steel backing **1**, a lead bronze carrier layer **2**, an optional intermediate diffusion barrier **3**, and a sliding layer comprising AlSn(20)Cu(0.5) (col. 3, ln. 21-37 and col. 4, ln. 4-13). Steeg further teaches the sliding layer may comprise Sn between 15 to 36 wt% Sn and 0.1 to 30 wt% Cu (col. 2, ln. 43-48); however it does not exemplify an embodiment wherein the tin and copper contents fall within the claimed range or that the hardness is within the claimed range.

Steffens teaches a sliding layer composition having improved properties when compared to AlSn20Cu such as increased fatigue strength and hardness (par[0015]). Steffens further teaches that the sliding layer is an AlSnCu alloy wherein Sn is between 20-23 and Cu is 1.8-2.3 (par[0014[).

It would have been obvious to one of ordinary skill in the art at the time of the invention to have modified the invention of Steeg by employing the AlSnCu alloy coating of Steffens wherein Sn is between 20-23 and Cu is 1.8-2.3 wt% with a reasonable

expectation of success of forming a component having increase fatigue resistance and hardness for the plain bearing of Steeg.

Regarding the limitation that the sliding layer is sputtered onto the carrier layer, the claims are drawn to an article, not the method of making. Absent a teaching or showing how the sputter formed coating would differ from that of the prior art, it would not provide a patentable distinction over the prior art. Furthermore, Steeg teaches that sputtering AlSnCu coatings forms highly loadable and uniform coatings (col. 1, ln. 36-55). While Steeg teaches that sputtering is not desirable due to the cost, the cost is the only drawback disclosed by Steeg in forming the claimed article by a sputter method. As such, it would have been obvious to one of ordinary skill in the art to have formed the plain bearing of Steeg as modified by Steffens by sputtering to insure a uniform coating having high load-bearing capacity is formed despite the increased cost of employing such a sputtering method.

Regarding the limitation that the hardness is between 110 and 150 HV 0.002. The AlSnCu coating overlaps the claimed coating with Sn contents of 22-23 and Cu of 2.3 (par[0014]). As such, it is expected that the hardness of the sliding layer would be within the claimed range since the same alloy is used to form the sliding layer. The Patent and Trademark Office can require Applicant to prove that prior art products do not necessarily or inherently possess characteristics of claimed products where claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes; burden of proof is on Applicants where rejection based on inherency under 35 U.S.C. § 102 or on prima facie obviousness under 35

U.S.C. § 103, jointly or alternatively, and Patent and Trademark Office's inability to manufacture products or to obtain and compare prior art products evidences fairness of this rejection, In re Best, Bolton, and Shaw, 195 U.S.P.Q. 431 (CCPA 1977).

Regarding claim 14, Steffens teaches the sliding layer may further comprise up to 0.1 wt% Ni, 0.7 wt% Si and 0.7 wt% Mn which would meet the claim limitation (par[0014]).

Regarding claim 15, Steeg teaches an intermediate layer **3** is formed (col. 3, ln. 28-30).

Regarding claims 16 and 18, the sliding layer is lead free and the bearing contains no antimony.

Regarding claim 17, although Steeg discloses the carrier layer contains lead, it would have been within the purview of one of ordinary skill in the art to have recognized that alternate carrier layer materials could be employed with a reasonable expectation of success. One would have been motivated to use a lead-free material since lead is known to have potentially adverse properties that could be eliminated by using materials which are lead free.

Regarding claims 19-20, the sliding layer having a Sn content between 22-23 and Cu content of 2.3 would meet the claim limitations.

Regarding claim 21, although Steffens teaches the upper limit for copper is 2.3, Steeg teaches a copper content range of 0.1 to 30 wt% (col. 2, ln. 43-48). As such, it would have been within the purview of one of ordinary skill in the art to have employed an alloy having a copper content slightly greater than the 2.3% disclosed by Steffens

with a reasonable expectation of success of producing the bearing having improved high load bearing capacity, hardness and fatigue strength. Specific claimed alloy, whose compositions are in such close proportions to those in the prior art that, prima facie one skilled in the art would have expected them to have the same properties, must be considered to have been obvious from known alloys, Titanium Metals Corporation of America V. Banner, 227 USPQ 773.

Regarding claims 22-24, since the prior art teaches alloys having the same composition as that claimed, the hardness would be expected to be substantially similar since it uses alloys having the claimed composition.

Regarding claims 25-26, the prior art does not teach the claimed compositions for the carrier layer, however it would have been obvious to have employed any conventional copper alloy such as those claimed for the carrier layer with a reasonable expectation of success.

Regarding claim 27, the plain bearing of Steeg could be employed in automotive applications.

Response to Arguments

Applicant's arguments filed 10-24-08 have been fully considered but they are not persuasive.

Applicant argues that in order to overcome the prior art, the claims have been redirected to a method for producing a plain bearing composite. However, the claimed method is considered distinct from the originally elected invention and has been withdrawn. The remaining claims 13-27 and 29 are drawn to article claims.

Applicant argues that Steeg teaches an electron beam vapor deposition which increases the fatigue limit, in particular, in comparison to electroplating. Applicant further asserts that while Steeg teaches sputtering is known, it considers sputtering in need of improvement. Applicant asserts that Steeg's reasoning for the sputter process being deficient is the cost and being limited to low deposition rates whereas the high deposition rates for the EVPD process are desirable to form the desired dispersion of components. Applicant further argues that Steeg is silent to the hardness of the sliding layer

First, the claims are drawn to an article, not the method of making. Applicant has not shown that the sliding layer applied by an EVPD process would not exhibit hardnesses within the claimed ranged. Steeg teaches that sputter formed layers of AlSnCu alloys are highly loadable and are uniform (col. 1,ln. 36-55). Steeg further teaches that the AlSnCu sliding layer formed by the EVPD process exhibits a very high load-bearing capacity and uniform composition (col. 2, ln. 23-35). As such, while Steeg teaches a method which is different from that claimed by Applicant, it appears to teach a sliding layer having properties which are equivalent to sputter formed coatings. Therefore the plain bearing composite of Steeg as modified by Steffens is considered to meet the claimed hardness limitations since it teaches the same coating material and having properties similar to that formed by a sputter method.

In addition, although Applicant asserts Steeg teaches the low deposition rate of sputter methods does not form the desired structure in the coating, Steeg appears to disclose the slow deposition rate is only a drawback because it increases the cost of the

process (col. 1, ln. 49-53). As such, the assertion that sputtering should be avoided because it will not form the desired structure is not persuasive. It would have been obvious to one of ordinary skill in the art at the time of the invention to have formed the claimed sliding layer by a sputtering method so as to form a high load-bearing and uniform coating provided the increased costs associated with the process was acceptable.

Applicant also argues that one of ordinary skill in the art would not be motivated to replace the electron beam deposition method of Steeg with a sputtering method as claimed since Steeg teaches that electron beam deposition is superior to sputtering and leads to higher load-bearing capacity. As recited above, the claims are drawn to an article, not the method of making. Furthermore, Steeg appears to teach that both the recited EVPD method and known sputter methods form uniform sliding coating layers having high load-bearing capacities. As such, the methods appear to be equivalents which both produce high quality coatings which would be considered to meet the claimed article limitations.

Applicant further argues that one of ordinary skill would not be motivated to replace the 0.25 percent copper content of Steeg with the 1.8 to 2.3 percent by weight copper value proposed by Steffens as it would represent nearly a fact of a ten fold increase in copper content which could lead to an unacceptable brittleness for the resulting sliding layer and reduction in the lifetime thereof. This argument is not persuasive since Steeg explicitly recites the copper content of the AlSnCu alloy may be between 0.1-30%. Furthermore, Applicant has provided no evidence that the claimed

increase in copper would lead to unacceptable brittleness and a reduction in the lifetime of the component.

Applicant also argues that Steffens provides no motivation for such a substitution since Steffens proposes the addition of increased copper in order to dissolve linear tin deposits produced during rolling which would not occur in electron beam deposition. However Steffens further teaches that increased copper contents to an AlSnCu alloy should generally increase hardness of the layer (par[0012]) and further that sliding components exhibiting increased fatigue strength and hardness are desirable (par[0002]). It would have been obvious to one of ordinary skill to have employed AlSnCu alloys with higher copper contents with a reasonable expectations of success of exhibiting a coating layer having increased hardness and fatigue strength. Furthermore, Steeg teaches that alloys having higher copper concentrations are suitable, as such it would have been obvious to one of ordinary skill in the art to have employed alternate alloy compositions such as the alloy of Steffens so as to form a layer having increased fatigue strength. Applicant further asserts that the replacement of Steffens alloy in Steeg's bearing component could result in reduced performance without solving any of the problems addressed by Steffens. Applicant has provided no evidence showing that reduced performance would occur.

In response to the issue whether the reference is nonanalagous art, it has been held that the determination that a reference is from a nonanalogous art is twofold. First, one decides if the reference is within the field of the inventor's endeavor. If it is not, one proceeds to determine whether the reference is reasonably pertinent to the particular

problem with which the inventor was involved, In re Wood, 202 USPQ 171, 174. In the instant case, both Steeg and Steffens are generally drawn to sliding layer coatings comprising alloys of AlSnCu alloys having similar and/or overlapping compositions which exhibit layers having increased fatigue strength and load-bearing capacity.

Applicant reiterates the argument that the references are silent to the hardness being within the claimed range. However, as set forth above, since the layer comprises a similar alloy composition as well as similar method of making, it would be considered to have a hardness within the claimed range.

Applicant also argues with respect to claim 21 that the tin content be between 23-27 and copper content between 2.4-2.7. As set forth in the rejection above, while Steffens teaches a maximum of 2.3% of copper, Steeg teaches a broader range and thus the selection of 2.4% as opposed to the 2.3% disclosed by Steffens would have been obvious.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JASON L. SAVAGE whose telephone number is (571)272-1542. The examiner can normally be reached on M-F 6:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer McNeil can be reached on 571-272-1540. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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1-30-09

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